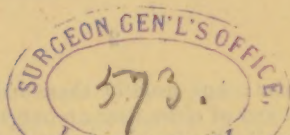


CUMSTON (C. G.)



[Reprinted from the Boston Medical and Surgical Journal
of March 10, 1896.]

LUMBAR NEPHRECTOMY IN ANURIA DUE TO UTERINE CANCER.¹

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OBSTRUCTION of the ureters and consecutive anuria is one of the most frequent complications of cancer of the cervix uteri, and, in a goodly number of cases, is the direct cause of the patient's death.

Féré and Caron made autopsies of 51 women who died from uterine cancer, and found bilateral dilatation of the ureters, calices and pelves in 21 subjects, while in 19 others the same condition was found on one side.

Charcot states that one-half of the women with cancer of the uterus die from uremia. Soexinger found compression of the ureters with dilatation and hydronephrosis, in 28 out of 62 autopsies, made on women dead from cancer of the uterus; while Ebstein records 39 deaths from slow uremia and three from acute uremia, in the affection under consideration.

According to Lancereaux, uremia is only infrequently absent in this disease, and notes its absence in 5 out of 23 cases; but believes that it would have made its appearance in the former if the patients had not prematurely died from hemorrhage.

The frequency of this complication is sufficient, I think, for all surgeons to give it close study both as to the pathology, symptoms and treatment. Gusserow states that of 311 cases of uterine cancer the disease invaded the urinary system in 128 subjects. In more than one-half of the cases bilateral obstruction and di-

¹ Read before the Section for Obstetrics and Gynecology of the Suffolk District Medical Society, December 11, 1895.

presented by the author

latation occur; but usually these changes are more pronounced and of older date on one side or the other, and as naturally results, the lesions on the most recent side are less advanced.

Obstruction of the ureter by the neoplasm may take place at its intra-vesical portion or on its course along the side of the cervix uteri. In the first case, the neoplasm obstructs the ureteral orifice, or simply pulls on the vesical walls by the retraction of the growth. In the second case, the ureter is surrounded by the tumor, which may compress it, or, as is more frequent, infiltrates the walls, thus narrowing the calibre of the duct. The projection of the granulations into the ureter completes its occlusion. When the ureter is not invaded by the growth, inflammation of its walls, by propagation of the frequently attending cystitis, may cause obliteration of the canal.

In a case recorded by Rayer, the diseased lymphatic glands produced obstruction of one ureter by compression.

The characteristics of this obstruction are that it is incomplete, chronic, progressive, and subject to variations. It is incomplete and for a long time the urine will come in part into the bladder, thus delaying uremic symptoms. It is chronic and progressive, which distinguishes it from obstruction due to calculus, and allows of the formation of an hydronephrosis. The flow of the urine may reappear without any apparent cause, only to stop again according to the predominance of the phenomena of infiltration or ulceration. The obstacle to the passage of the urine into the bladder brings about a diminution in the flow, and an increase of pressure of the liquid which, little by little, accumulates in the ureter, then the pelvis and calices. A slow and progressive dilatation of these organs results, and at the same time a thickening of their walls from simple irritation. The ureter becomes tortuous and may attain the dimension of the small intes-

tine; the pelvis is dilated to the volume of a hen's egg or even more and hydronephrosis is the ultimate result. The urine that accumulates in these organs loses part of its properties. It is transparent, odorless, containing only a relatively small quantity of urea, about seven to eight grammes per litre according to Debove and Dreyfus.

The kidney soon becomes pathologically altered, even when there is no infection from bacteria coming from the bladder. Féré and Caron found 17 cases of unilateral and seven of bilateral interstitial nephritis out of 51 cases of uterine cancer.

Strauss and Germont ligated the ureters of animals with every antiseptic precaution, and demonstrated two stages in the kidney lesions, namely, (1) ectasia, (2) atrophic cirrhosis coming on from four to five weeks after the first stage.

Artaud took up the same experiments and compared them with the kidney lesions resulting from cancer of the uterus, and demonstrated that the latter only differ by their inflammatory element.

Cornil and Brault studied the lesions histologically, and demonstrated three stages. In the first a simple obstruction without inflammation, with simple mechanical dilatation of the uriniferous tubes by the urine and progressive atrophy of the epithelium with infiltration of the conjunctive tissue. In the second stage the inflammatory phenomena are added to the mechanical. There is a dilatation of the tubes up to the papillæ, infiltration of the conjunctive tissue and diffused sclerous nephritis, with progressive atrophy of the epithelium. And lastly, in the third, there is an irritation of the conjunctive tissue by the altered urine and diffused suppurating nephritis.

In closing the pathology, let me say that Lancereaux declares that a nephritis consecutive to an epithelioma of the uterus is a constant complication if the neoplasm is at all advanced, for during the twenty-five years

that he has performed autopsies he has not once met with a case in which this was not realized. The practical deduction to be made from what I have said regarding the pathology is, that *uterine cancer is very frequently complicated by uremic accidents.*

Anuria from cancerous obstruction of the ureter presents symptoms different from those met with in other forms of anuria, and giving it a particular character, especially well described by Merklen. The *début* is generally most insidious, and suppression of urine is for a long time unnoticed, all the more easily so because it is not absolute. It is only when the symptoms of anuria appear that the attention of the surgeon is attracted. Usually uremia shows its presence by gastro-intestinal troubles, such as repeated vomiting of mucus or a liquid slightly colored with bile, accompanied by nausea and hiccough, and a very pronounced fetidity of the breath. Diarrhea is also sometimes present. The patient is then overtaken by stupor, which is followed by somnolence. The temperature descends progressively, and may fall as low as 36° or even 35° C., edema is infrequent. At last the breathing becomes difficult, slow and sighing; the pulse is small and irregular; death occurring during coma, which is sometimes preceded by one or more convulsions.

Symptoms of acute uremia are infrequent, such as prolonged coma or eclampsia. The two following cases, due respectively to Gauchet and Aran, are most instructive:

A woman of about thirty-five was sent to the hospital without any history; and as the patient could not reply to the questions, nothing could be obtained regarding the nature of her case. She was in an extremely serious condition with epileptiform convulsions and died in twenty-four hours without regaining her intellect. Autopsy showed a cancer of the cervix compressing both ureters.

An old cachectic woman fell suddenly on the sidewalk. Taken to the hospital, no paralysis was found; but the patient was in a deep coma, and died a few minutes after. At the autopsy both kidneys were greatly distended, measuring vertically 18 and 20 centimetres, and were converted literally into two cysts. The ureters were compressed and obliterated by a cancer of the cervix.

There is a particular form of cancerous uremia to which I would particularly call your attention, because it may be relieved by surgical operation; and that is, those cases of anuria, coming on, either at the *début* of the malady, when the general health of the patient is not attacked, so to speak, or as an initial symptom of an up to that time unknown neoplasm of the uterus. Under these circumstances, nephrotomy will certainly give good results; the life of the patient may be prolonged for many months.

From a careful study of the symptoms present in cases reported and two that have recently come under my personal notice, I think that the accidents from anuria may be classed into two distinctly different groups as to the conditions which produce them. In the first, and by far the most common, the patient is in a state of cachexia, weakened by repeated hemorrhages or infection, when an anuria appears either suddenly or, as is more frequent, after a period of oliguria. Surgical interference is certainly justifiable in such a case but the lease of life is prolonged for a few months only. In the second class a uremia appears; a vaginal examination is made and a latent neoplasm of the cervix is found. It is in this class of cases that nephrotomy will give good results; for in these patients, who are not in a state of cachexia, life may be extended for perhaps a year or more.

The only means of saving life in cases of anuria due to cervical cancer is by the knife; there are to my mind no scientific contraindications for an operation.

We have the choice between opening the kidney or sewing the ureter to the bladder, intestine or at the skin. The two last-named procedures appear to me to be too complicated under the circumstances, for it must not be forgotten that the operation performed is one of urgency, consequently its duration should be short and the technique easy.

To my thinking nephrotomy is the operation of choice, because it seems to me the simplest. Le Dentu's operation, however, should be mentioned, and may possibly be preferred by some; it consists of bringing the ureter to the surface of the skin in the flank and is executed as follows: A large oblique incision is made in the flank, and by carefully separating the peritoneum, the point at which the ureter is crossed by the utero-ovarian vessels is reached. The ureter is then isolated with care and caught up as low as possible with two hemostatic clips and sectioned with scissors between them. It now remains to draw the renal end of the ureter to the surface of the incision and to suture it by four silkworm-gut points. After the deep muscles of the incision have been sutured a rubber tube is inserted into the ureter, which passes through the dressings into a urinal.

In performing nephrotomy, the kidney may be reached by the lumbar incision or through the abdominal cavity; but in the operation under consideration, the former is to be selected.

After a complete and wide sterilization of the teguments, with the patient placed on the side, with a hard pillow inserted under her between the crest of the ilium and the costal border, in order to make the lumbar region on the side on which the operation is to be performed stand out, an assistant holds her in this position.

The operation is divided into three steps, namely, (1) incision of the skin, (2) incision of the deep structures, (3) incision of the kidney.

The incision can be made vertical or oblique. If the vertical be selected, it should be made at eight centimetres from the dorsal spine outside of the vertebral muscles and the external border of the quadratus lumborum. The oblique incision is recommended by Aumont, and may be made in the following way :

After having made a vertical incision of three centimetres, starting from the lower border of the twelfth rib and internally to the muscular mass of the spinal column, Le Dentu continues it by following along parallel to the last rib. The important point, however, is to make a sufficiently long incision, in order that the remainder of the operation may not be hindered by want of space. After the incision of the skin, the cellular tissue is cut through, which may be more or less edematous, and through the muscles to the quadratus lumborum. This muscle is held aside by a retractor, but if this is found impossible, is simply incised. The fatty tissue surrounding the kidney is then seen, and is torn with the fingers, or, as I prefer, with a Kocher's sound; and finally the kidney is reached. Not infrequently the organ will be slightly movable, in which case an assistant opposite the operator, by means of his closed fist under the ribs, pushes the kidney up into the wound, the organ being either fixed by two or three silk sutures through it or incised at once. This is known as Guyon's method.

The incision of the kidney is very easy, the only important point being to make it on the convex border, as is advised by Le Dentu. The experiments and injections made by Tuffier and Lejars have demonstrated that the vascular supply is the least on the convex border of the organ. It must be remembered that in subjects having obstruction of the ureters there is always a certain degree of sclerous nephritis, consequently there is atrophy of the renal vessels, and hemorrhage is not to be greatly feared.

A large incision into the kidney is not necessary,

two centimetres being quite enough, after which a pair of hemostatic clamps is pushed through the parenchyma into the pelvis of the organ and the blades then separated and the instrument withdrawn, thus increasing in width the size of the incision. The finger is then inserted into the pelvis of the kidney in order to make sure that it communicates with the incision. If the pelvis of the kidney is distended by a retention, some urine will escape when the organ is incised. A slight hemorrhage may also occur, but which is easily controlled by a tamponade. The remainder of the operation consists of deep catgut sutures, leaving only a little space for drainage. The cutaneous incision is also closed in greater part.

The after care of the patient is simple. The urine is voided by the lumbar fistula and by the bladder. The uremic symptoms disappear, the general health improves.

In the three cases reported by Aumont and due to Picqué, Jayle and Labbé, life was prolonged respectively 105, 73 and 19 days; but these were desperate cases, and I think that if the operation should be performed in a fairly strong patient the results will be still better.

The dressings over the wound should be changed daily with all aseptic precautions. The strips of gauze which were packed into the kidney may be removed after forty-eight hours, and replaced by a drainage-tube, the important point being to keep the fistula open.

As a matter of course, the local condition of the uterus should be attended to, and the vaginal douche with some good antiseptic solution should be frequently administered to prevent septicemic complications.